Thinking Machines Corporation

Corporate Profile

Thinking Machines Corporation was founded in 1983 based on a belief that developments in and interaction between two rapidly evolving technologies would create an opportunity to design a leading-edge computer system for the future. Parallel processing and artificial intelligence technology are the driving forces which combine to make possible computer systems—hardware and software—with fundamentally new and different capabilities.

Sheryl L. Handler
President and Founder

Ph.D., MIT.

Prior to founding Thinking Machines Corporation, Sheryl was President for 12 years of PACE/CRUX, a domestic and international economic development firm. Clients ranged from biotechnology and telecommunication companies to the World Bank, the U.S. State Department, the U.N. and numerous other agencies and companies. Her experience in working across scientific, engineering and business disciplines provides the basis for assembling and managing the world-class team behind Thinking Machines.

Sheryl was educated at Case Western Reserve, Harvard and MIT, where she was a Collamore-Rogers Scholar.

Richard J. Clayton
Vice President
Connection Machine® Operations

M.S.E.E., MIT.

During his 20 year career at Digital Equipment Corp., Dick was Vice President of Computer Systems Development and Vice President of Advanced Manufacturing Technology. His responsibilities included management of the original VAX hardware design effort. Prior to that he was Group Product Line Manager of Medium Systems.

He has focused the engineering efforts on sound design and ease of manufacturing. Dick is establishing the production, field, and support organization to assure customer satisfaction during the company's accelerated growth.

Marvin Denicoff
Chief of Project Development
and Founder

M.A., Mexico City College, Mexico.

For over 30 years, Marvin was the architect of U.S. government programs in artificial intelligence and related research. As Director of the Computer Science program at the Office of Naval Research, he directed DOD's largest basic research program in artificial intelligence, man-machine systems, and advanced software. His many honors and awards include the DOD/Navy Distinguished Civilian Service Award.

As Chief of Project Development and a founder, Marvin structures joint projects between Thinking Machines and corporations, government agencies, and universities.

W. Daniel Hillis
Founding Scientist

M.S., MIT.

Danny is an acknowledged industry leader in massively parallel systems design. He has made important contributions to artificial intelligence applications in the fields of common sense reasoning and robotics, as well as in the field of systems architecture. He is a former Hertz fellow and author of the book *The Connection Machine.*

Danny is the architect of the Connection Machine system. The design of the hardware is a direct outgrowth of his pioneering work in parallel algorithms and software.

Mirza Mehdi
Vice President for Corporate Development

M.B.A., Georgia State University.

Mirza's experience and accomplishments span the range from major multi-national firms to vigorous young companies. After honing his analytical skills as a Certified Public Accountant with Arthur Andersen & Co., he managed the Business Planning Department of the International Division of Baxter-Travenol Laboratories, where his responsibilities included planning and evaluation of potential acquisitions. Prior to joining Thinking Machines, Mirza was the Director of Finance and Business Development for Genetics Institute, Inc., a major biotechnology firm.

At Thinking Machines, Mirza provides expertise in strategic planning, project evaluation and financial management, and an overview that bridges the scientific and business activities of the company.

Marvin Minsky
Founding Scientist

Donner Professor of Science, MIT

Ph.D., Princeton.

Marvin is a father of the artificial intelligence field and one of its most influential leaders. His work has emphasized approaches to problems of symbolic description, knowledge representation, semantics, machine perception and learning and, recently, in psychological and physiological theories of imagery, memory, and new computational structures. Also an experienced engineer, Marvin was one of the most influential initiators of the modern field of intelligence-based mechanical robots. Among his many honors and awards, he is a Member of the National Academy of Sciences, a Fellow of the American Academy of Arts and Sciences, and the winner of the Turing Award of the Association for Computing Machinery.

At Thinking Machines, Marvin serves as scientific advisor for the company's artificial intelligence projects.

James Bailey
Director of Marketing

B.A., Brown University.

During his 16 year career at Digital Equipment Corporation, Jim managed the New Products Marketing department, which introduced major new corporate products, including the VAX. He has also held positions of corporate manager of pricing, competitive analysis, and market research. He is a member of Phi Beta Kappa.

Jim is responsible for introducing Thinking Machines products and technology to customers, and for establishing joint development programs where appropriate to assure a successful bridge between our technology and the customer application.

Rolf D. Fiebrich
Director of Advanced Systems Development

Dr.rer.nat (Ph.D.) in Computer Science, Technical University of Munich.

During Rolf's career at IBM he was a Research Staff Member of the Thomas J. Watson Research Center, where he focused on research programs for methods of VLSI design. Prior to that he was Assistant Professor of Computer Science at Ludwig-Maximilians—University of Munich. He has published many articles in the field of software engineering and VLSI design.

Rolf manages the company's effort for investigating design advances for future generations of the Connection Machine system. He is responsible for the development of engineering applications that exploit the power of the Connection Machine system. Rolf also manages the company's VLSI design automation development and the custom VLSI program that supports the Connection Machine engineering effort.

Jill P. Mesirov
Senior Scientist

Ph.D., Brandeis University.

Before arriving at Thinking Machines, Jill was the Associate Executive Director of the American Mathematical Society. She still serves as Executive Director of the International Congress of Mathematicians 1986. Previous to that she was a member of the Research Staff of the Communications Research Division of the Institute for Defense Analyses. Her research there focused on the areas of efficient algorithms, cryptology, and speech. She has also published in the field of nonlinear partial differential equations.

Jill leads the scientific computing group at Thinking Machines. Her group is exploring numerical and nonnumerical algorithms for the Connection Machine with a view towards scientific and engineering applications. One exciting project involves the use of cellular automata methods for modeling fluid flow.

George Robertson
Senior Scientist

M.S., Carnegie-Mellon University.

Before joining Thinking Machines, George was Senior Scientist at Bolt, Beranek, and Newman, and Research Computer Scientist in Artificial Intelligence at Carnegie-Mellon. He has done research in distributed systems, multiprocessor systems, programming languages, and user interfaces. He was the principal designer of the large scale ZOG decision support system for the USS Carl Vinson nuclear aircraft carrier.

At Thinking Machines, George is involved in a wide range of research projects, including machine learning, genetic algorithms and classifier architectures, the design of the TMC Indexer interface and advanced testing strategies for the Connection Machine system.

Guy L. Steele Jr.
Senior Scientist

Ph.D., MIT.

Prior to joining Thinking Machines, Guy was Assistant Professor of Computer Science at Carnegie-Mellon University, where he engaged in research in VLSI design, computer architectures, and high-level languages. Guy is the author of *Common Lisp: The Language*, the standard text on the subject. He is also a co-author (with Samuel P. Harbison) of *C: A Reference Manual.* He was Program Chairman for the 1984 ACM Symposium on LISP and Functional Programming, and has served on the program committees of other ACM symposia.

Guy is responsible for the Architecture of the Connection Machine system software and languages. He is furthermore responsible for leading the implementation of CM Lisp™.

Theodore F. Tabloski Jr.
Director of System Software Development

Ph.D., Purdue University.

Ted has had a fifteen year career in industry with responsibilities for product planning, design, and development of advanced computer hardware and software systems. His most recent affiliation has been with Computer Consoles, Inc., where, as Director of Engineering, he participated in the development of corporate strategies and the formulation of marketing plans. Prior to that, Ted was at Bell Laboratories where he held various supervisory and research engineering positions.

Ted manages the system software effort for the Connection Machine program. He is focusing on the development, quality, release and support activities associated with the system software.

David L. Waltz
Senior Scientist

Ph.D., MIT.

Dave joined Thinking Machines from the University of Illinois, Urbana, where he was Professor of Electrical Engineering and Research Professor at the Coordinated Science Laboratory. Prior to that he was a post-doctoral researcher at the Artificial Intelligence Lab at MIT. He was the Editor for AI of the *Communications of the ACM* and Executive editor of *Cognitive Science.* He has published widely in the field of artificial intelligence.

Dave leads the knowledge representation and natural language group at Thinking Machines. Product development efforts are focused on software that accepts unformatted English language data bases and provides convenient access and ultimately question-answering abilities for the data bases.

Corporate Fellows

Richard P. Feynman
Richard Chace Tolman Professor of Theoretical Physics, Caltech

Ph.D., Princeton University.

During his 35 years as a Professor at Caltech, Richard has received the highest honors in his field. He received the Albert Einstein Award from Princeton in 1954 and The A.E.C./E.O Lawrence Award in 1962. He was elected a Foreign Member of the Royal Society in 1965, and received the Nobel Prize in Physics the same year. He received the Oersted Medal for Teaching in 1972 and the Niels Bohr International Gold Medal in 1973.

Numerical algorithms and methods of computation have been specialties of Richard's throughout his career. He has been in the forefront of Thinking Machines' work in developing new algorithms for computing in parallel. His analysis of message traffic and routing algorithms played a central role in the final design of the Connection Machine system.

Charles Leiserson
Associate Professor MIT

Ph.D., Carnegie-Mellon University.

As a graduate student at Carnegie-Mellon, Charles wrote the first paper on systolic architectures with H.T. Kung, for which they received a U.S. patent. His dissertation, *Area-Efficient VLSI Computation,* won the first ACM Doctoral Dissertation Award. In 1981, he joined the faculty of the theory of computation group in the MIT Laboratory for Computer Science. Honored by a Presidential Young Investigator Award in 1985, he is also a member of the IEEE and the ACM, and serves on the ACM General Technical Achievement Award Committee which selects the Turing Award winner. He has authored over twenty papers on the theory of VLSI and parallel algorithms.

At Thinking Machines, Charles applies his expertise on parallel computation, VLSI architectures, graph theory, digital circuit timing, analysis of algorithms, computer-aided design, placement and routing, wafer-scale integration and layout compaction, to the Connection Machine design and applications effort.

Tomaso A. Poggio
Professor
MIT

Doctor in Physics, University of Genoa.

Tomaso is Professor at the MIT Artificial Intelligence Laboratory with an appointment in the Whitaker College of Health Sciences and Technology. He has published widely in the field of computational vision and is on the Editorial Board of seven specialized journals.

Tomaso plays a leadership role in the vision research now underway at Thinking Machines. Among his special interests is stereo vision, a capability which is being applied to the problems of satellite image analysis.

Jacob T. Schwartz
Professor
New York University

Ph.D., Yale University.

Jack is Professor of Mathematics and Computer Science at New York University and former Chairman of the Computer Science Department at the Courant Institute of Mathematical Sciences. He is a member of the National Academy of Sciences, the Editorial Board Chairman of the *Journal of Computer & Systems Sciences,* and the former Chairman of the Computer Science Board—National Research Council. He currently directs the New York University Robotics and Computer Vision Laboratory.

As a founder of the Ultracomputer project at the Courant Institute, Jack is a leading figure in parallel system design. At Thinking Machines he is actively involved in algorithms for massively parallel computation.

Jerome Wiesner
President Emeritus and Institute Professor
MIT

Ph.D., University of Michigan.

Jerome Wiesner is currently teaching and involved with research at MIT. He has been a member of the MIT Faculty for over 25 years, having served as Dean of the School of Science and Provost before becoming President in 1971. He was Science Advisor to Presidents Kennedy and Johnson. Jerome serves on many corporate boards and is an advisor to numerous national and international agencies.

At Thinking Machines, Jerome's role is that of scientific advisor for the company's basic and applied research projects.

Stephen Wolfram
Institute for Advanced Study
Princeton

Ph.D., Caltech.

An internationally known theoretical scientist, Stephen has contributed to a wide range of scientific and computational fields. He is the acknowledged leader in the burgeoning field of cellular automata, a field in which he has published widely. Among his many honors is the MacArthur Foundation Prize.

The Connection Machine system is the first computer system that can fully exploit the computational power of cellular automata. Stephen's work at Thinking Machines has centered on the use of these algorithms for the simulation of physical phenomena such as fluid dynamics and heat transfer.

Board of Directors

Richard J. Clayton

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Kassko Enterprises

Marvin Denicoff

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Frank Stanton
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Former Chairman,
The Rand Corporation.
Overseer, Harvard College.

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